

REMARKS

Administrative Overview

Claims 56-67 and 69-75 were examined in the Office action of October 28, 2008, and are pending.

Independent claim 56, and claims 57-67 and 69 dependent therefrom, are rejected under 35 U.S.C. 101 as allegedly not falling within a statutory category of invention.

Independent claims 56 and 70, and claims 57, 65-67, 69, and 71-75 dependent therefrom, are rejected under 35 U.S.C. 103(a) as allegedly being unpatentable over U.S. Publication No. 2002/0154132 (**Dumesny**) in view of "Seamless texture mapping of subdivision surfaces by model pelting and texture blending," SIGGRAPH 2000, New York, NY, pp. 471-478, ISBN: 1-58113-208-5 (**Piponi**).

Claims 58-64 are rejected under 35 U.S.C. 103(a) as allegedly being unpatentable over **Dumesny** and **Piponi**, and further in view of U.S. Patent No. 6,707,458 (**Leather**).

Without acquiescing to the rejections, Applicants amend independent claim 56 to recite "a user manipulation of a graphical user interface device." Further, Applicants amend independent claims 56 and 70 to each recite "a NURBS patch." These limitations are supported in the specification as originally filed, for example, in paragraphs [0020], [0031], [0102]-[0103], [0107] and [0187], and in FIG. 27 – no new matter is added.

Upon entry of this paper, claims 56-67 and 69-75 will be pending.

Independent claim 56 and its dependent claims are directed to statutory subject matter under 35 U.S.C. 101.

Independent claim 56 stands rejected under 35 U.S.C. 101. The Office Action argues that the claimed method neither transforms underlying subject matter to a different state or thing nor ties to another statutory category of invention. Without acquiescing to the rejection, Applicants amend claim 56 to recite a step of "rendering an arbitrarily-shaped region of the surface of the three-dimensional virtual object in response to a user manipulation of a graphical user interface device." This step is tied to the graphical *user interface device*, e.g., the device illustrated in FIG. 27, by means of which a user provides input. Therefore, amended claim 23 is tied to a particular machine.

For at least this reason, Applicants submit that independent claim 56, along with dependent claims 57-67 and 69, is directed to patentable subject matter, and requests that the rejection under 35 U.S.C. 101 be reconsidered and withdrawn.

None of the cited art teaches representing an arbitrarily-shaped user-defined region of a surface of a virtual object using a NURBS patch, as recited in each of independent claims 56 and 70.

Applicants respectfully traverse the rejections of claims 56 and 70 and their dependent claims over **Dumesny** in view of **Piponi**.

Amended claims 56 and 70 recite, respectively, a step of and instructions for defining a “**NURBS patch**” over an “**arbitrarily-shaped**,” user-defined region. The prior art fails to teach the use of a NURBS patch.

Dumesny models the surface topology of a 3D object as a set of polygons joined together at their edges (*see, e.g., Dumesny*, paragraphs [0002] and [0011]), and uses a plane mapping function to apply a texture to the polygons (*see, e.g., paragraphs [0006] and [0013]*). A user may modify the mapping for one or more specified polygons (*see, e.g., paragraphs [0011] and [0015]*). In fact, **Dumesny** is concerned with providing means for manipulating texture-mapping to *correct artifacts* resulting from the use of standard plane mapping for complex surface topologies. (*See, e.g., paragraphs [0034]-[0042]*.) Although **Dumesny** mentions non-planar mapping functions for primitive (e.g., cylindrical) surface topologies (*see paragraph [0005]*), **Dumesny** does not teach or suggest the use of NURBS patches.

Applicants submit that a selection of polygons, as described in **Dumesny**, does *not* constitute an arbitrarily-shaped, user-defined region as required in Applicants’ claims. First, the boundary of a set of polygons is not arbitrarily-shaped since it consists exclusively of straight line segments. Second, the enclosed region is not arbitrarily-shaped since it consists exclusively of planar segments. By contrast, the NURBS patch recited in Applicants’ claims allows for curvature in both the surface and the boundaries. Applicants’ arbitrarily-shaped, user-defined surface region is neither limited to sharpe-edged polyhedra, nor to primitive non-planar geometries (such as, e.g., cylindrical or spherical geometries). One of the advantages of Applicants’ claimed method is that it allows the wrapping of a texture onto a surface region of a 3D object with *little distortion* (*see, e.g., Specification, paragraph [0013]*), thus further distinguishing the claimed invention from **Dumesny**’s mapping method, which may cause artifacts requiring subsequent correction.

Piponi does not cure **Dumesny**’s failure to teach representing arbitrarily-shaped surface regions using NURBS patches, as required in Applicants’ claims. To the contrary, **Piponi teaches away** from using NURBS patches. (*See p. 471, right column, first full paragraph.*) **Piponi** describes the approximation of surfaces of 3D objects with *subdivision surfaces*, starting with a *polygon mesh*. (*See p. 471, right column, first three full paragraphs.*)

Leather, which was cited by the Examiner with regard to various dependent claims, does not cure the deficiencies of the combination of **Dumesny** and **Piponi** in their failure to teach the method of claim 56 and apparatus of claim 70, as **Leather** does not teach or suggest the use of NURBS patches either.

Therefore, none of **Dumesny**, **Piponi**, and **Leather**, nor any combination thereof, discloses or suggests a method or system of selecting and texture-mapping user-defined, arbitrarily-shaped surface regions using NURBS patches. Thus, these references do not disclose

all limitations of claims 56 and 70. Applicants request the rejections of these claims be reconsidered and withdrawn at least on this basis, and that claims 56, 70, and all their dependent claims be allowed in due course. Applicants reserve the right to present further arguments regarding the patentability of the dependent claims, should this become necessary.

CONCLUSION

Applicants contend the claims are in condition for allowance. Applicants respectfully request reconsideration and withdrawal of all rejections, and allowance of claims 56-67 and 69-75 in due course. The Examiner is hereby cordially invited to contact Applicant's undersigned representative by telephone at the number listed below to discuss any outstanding issues.

Respectfully submitted,

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